



Engineering and Testing for EMC and Safety Compliance



Accredited under NVLAP Lab Code 200061-0

Certification Application Report FCC Part 15.247 & RSS-210

Test Lab: Rhein Tech Laboratories, Inc. Tel: 703-689-0368 360 Herndon Parkway Fax: 703-689-2056 Suite 1400 Herndon, VA 20170 E-Mail: atcbinfo@rheintech.com Web: http://www.rheintech.com		Applicant: Zylaya Corp. Tel: 301-740-3825 444 N. Frederick Ave. Fax: 301-740-3942 Suite 318 Gaithersburg, MD 20877 Contact: Mark Grek Email: mgrek@zylaya.com	
FCC ID:/ IC:	UVV-ZFOB/ 7070A-ZFOB	Test Report Date:	June 25, 2007
Platform:	N/A	RTL Work Order #:	2007173
Model Name/ Model Number:	Z-Fob/ZFOB001	RTL Quote #:	QRTL07-121
American National Standard Institute:	ANSI C63.4-2003: Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz		
FCC Classification:	DTS – Part 15 Digital Transmission System		
FCC Rule Part(s):	FCC Rules Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz Direct Sequence System October 1, 2006		
Industry Canada:	RSS-210, Issue 6 September 2005: Low Power License-Exempt Communications Devices		
Digital Interface Information	Digital Interface was found to be compliant		
Frequency Range (MHz)	Output Power (W)	Frequency Tolerance	Emission Designator
905-925	0.0074	N/A	310KFXD

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards. Furthermore, there was no deviation from, additions to, or exclusions from, the applicable parts of FCC Part 2, FCC Part 15, ANSI C63.4 and IC RSS-210.

Signature: 

Date: June 25, 2007

Typed/Printed Name: Desmond A. Fraser

Position: President

*This report may not be reproduced, except in full, without the written approval of Rhein Tech Laboratories, Inc.
The test results relate only to the item(s) tested.*

Table of Contents

1	General Information	5
1.1	Scope	5
1.2	Description of EUT	5
1.3	Test Facility	5
1.4	Related Submittal(s)/Grant(s)	5
1.5	Modifications	5
2	Test Information	6
2.1	Description of Test Modes	6
2.2	Exercising the EUT	6
2.3	Test Result Summary	6
2.4	Test System Details	7
2.5	Configuration of Tested System	8
3	Peak Output Power - §15.247(b)(3)	9
3.1	Power Output Test Procedure	9
3.2	Power Output Test Data	9
4	Compliance With the Band Edge – FCC §15.247(d)	10
4.1	Band Edge Test Procedure	10
4.2	Band Edge Test Results	10
4.2.1	Calculation of Lower Band Edge	10
4.2.2	Conducted Lower Band Edge Plots	11
4.2.3	Calculation of Upper Band Edge	13
4.2.4	Conducted Upper Band Edge Plots	13
5	Antenna Conducted Spurious Emissions - §15.247(d)	15
5.1	Antenna Conducted Spurious Emissions Test Procedure	15
6	Power Spectral Density - §15.247(e), (f); RSS-210 §A8.2	16
6.1	Power Spectral Density Test Procedure	16
6.2	Power Spectral Density Test Data	16
7	6 dB Bandwidth – IC RSS-Gen	20
7.1	6 dB Bandwidth Test Procedure	20
7.2	6 dB Modulated Bandwidth Test Data	20
8	Hopping Characteristics	21
8.1	Carrier Frequency Separation - §15.247	21
8.1.1	Carrier Frequency Separation Test Data	21
8.2	Number of Hopping Frequencies - §15.247	22
8.2.1	Carrier Frequency Separation Test Data	22
8.3	Average Time of Occupancy - 15.247(f)	23
8.3.1	Average Time of Occupancy Limits	23
8.3.2	Average Time of Occupancy Test Procedure	23
8.3.3	Average Time of Occupancy Test Data	23
9	Additional Requirements for Hybrid Systems – FCC §15.247(a)(1)	25
10	Conducted Emissions Measurement Limits – FCC §15.207	25
11	Radiated Emissions - §15.209	26
11.1	Limits of Radiated Emissions Measurement	26
11.2	Radiated Emissions Measurement Test Procedure	26
11.3	Radiated Emissions Test Results	28
11.3.1	Radiated Emissions Digital/Receiver Test Data	28
11.3.2	Radiated Emissions Harmonics/Spurious Test Data	29
12	Conclusion	30

Figure Index

Figure 2-1:	Configuration of System Under Test	8
-------------	--	---

Table Index

Table 2-1:	Channels Tested	6
Table 2-2:	Test Result Summary – FCC Part 15, Subpart C (Section 15.247)	6
Table 2-3:	Equipment Under Test	7
Table 3-1:	Power Output Test Equipment	9
Table 3-2:	Power Output Test Data	9
Table 4-1:	Band Edge Test Equipment	10
Table 5-1:	Antenna Conducted Spurious Emissions Test Equipment	15
Table 5-2:	Antenna Conducted Spurious Emissions – Hopping Mode	15
Table 6-1:	Power Spectral Density Test Equipment	16
Table 6-2:	Power Spectral Density Test Data	16
Table 7-1:	6 dB Bandwidth Test Equipment	20
Table 8-2:	Hopping Characteristics Test Equipment	24
Table 11-1:	Radiated Emissions Test Equipment	27
Table 11-2:	Digital/Receiver Radiated Emissions Test Data	28
Table 11-3:	Radiated Emissions Harmonics/Spurious - 905 MHz	29
Table 11-4:	Radiated Emissions Harmonics/Spurious - 915 MHz	29
Table 11-5:	Radiated Emissions Harmonics/Spurious - 925 MHz	29
Table 11-6:	Radiated Emissions Harmonics/Spurious Hopping Mode	30

Plot Index

Plot 4-1:	Conducted Lower Band Edge – Fixed Low Channel Operation	11
Plot 4-2:	Conducted Lower Band Edge – Hopping	12
Plot 4-3:	Conducted Upper Band Edge – Fixed High Channel Operation	13
Plot 4-4:	Conducted Upper Band Edge – Hopping	14
Plot 6-1:	Power Spectral Density - 905 MHz	17
Plot 6-2:	Power Spectral Density - 915 MHz	18
Plot 6-3:	Power Spectral Density - 925 MHz	19
Plot 7-1:	6 dB Bandwidth	20
Plot 8-1:	Carrier Frequency Separation	21
Plot 8-2:	Number of Hopping Frequencies	22
Plot 8-3:	Time of Occupancy (Pulse Width 2.25 ms)	23
Plot 8-4:	Time of Occupancy (Pulses per 500ms Sweep)	24

Appendix Index

Appendix A:	FCC Part 1.1307, 1.1310, 2.1091, 2.1093; IC RSS-Gen: RF Exposure	31
Appendix B:	Agency Authorization Letter.....	32
Appendix C:	Confidentiality Request Letter.....	33
Appendix D:	IC Letters.....	34
Appendix E:	Label and Label Location	35
Appendix F:	Technical Operational Description.....	36
Appendix G:	Schematics	37
Appendix H:	Block Diagram	38
Appendix I:	Manual	39
Appendix J:	Test Photographs	40
Appendix K:	External Photographs	42
Appendix L:	Internal Photographs	43

Photograph Index

Photograph 1:	Radiated Testing – Front View	40
Photograph 2:	Radiated Testing – Back View	41

1 General Information

1.1 Scope

The EUT is a hybrid system operating under Part 15.247 of the FCC rules.

1.2 Description of EUT

Equipment Under Test	FOB Transceiver
Model Name/Number	Z-Fob
Power Supply	3.6 VDC battery back
Modulation Type	MSK
Frequency Range	905–925 MHz
Antenna Connector Type	Internal
Antenna Types	Internal

1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report and approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing (ANSI C63.4-2003).

1.4 Related Submittal(s)/Grant(s)

This is an original application for Zylaya Corporation Model Name: Z-Fob, FCC ID: UVV-FOB, IC: 7070A-ZFOB.

1.5 Modifications

No modifications were required to achieve compliance.

2 Test Information

2.1 Description of Test Modes

In accordance with FCC 15.31(m), and because the EUT utilizes an operating band greater than 10 MHz, the following frequencies were tested:

Table 2-1: Channels Tested

Channel	Frequency
Low	905
Middle	915
High	925

2.2 Exercising the EUT

Four EUT's were provided to perform various functions while testing. They were set up for both conducted and radiated measurements: low, middle and high channel fixed frequency operation, and one with hopping enabled.

There were no deviations from the test standard(s) and/or methods. The test results reported relate only to the item tested.

2.3 Test Result Summary

Table 2-2: Test Result Summary – FCC Part 15, Subpart C (Section 15.247)

Standard	Test	Pass/Fail or N/A
FCC 15.207	AC Power Conducted Emissions	N/A
FCC 15.209	Radiated Emissions	Pass
FCC 15.247(a)(2)	6 dB Bandwidth	N/A*
FCC 15.247(b)(3)	Maximum Peak Power Output	Pass
FCC 15.247(d)	Antenna Conducted Spurious Emissions	Pass
FCC 15.247(d)	Band Edge Measurement	Pass
FCC 15.247(e), (f)	Power Spectral Density	Pass
FCC 15.247(f)	Average Time of Occupancy, Channel Separation	Pass

* Not required for hybrid systems per KDB 453039

2.4 Test System Details

The test samples were received on May 22, 2007. The FCC identifiers for all applicable equipment, plus descriptions of all cables used in the tested system, are identified in the following table.

Table 2-3: Equipment Under Test

Part	Manufacturer	Model	Serial Number	FCC ID	Cable Description	RTL Bar Code
Transmitter Module	Zylaya Corporation	905 MHz fixed frequency	B0175	UVV-ZFOB	N/A	17819
Transmitter Module	Zylaya Corporation	915 MHz fixed frequency	B0176	UVV-ZFOB	N/A	17820
Transmitter Module	Zylaya Corporation	925 MHz fixed frequency	B0167	UVV-ZFOB	N/A	17821
Transmitter Module	Zylaya Corporation	hopping	B0164	UVV-ZFOB	N/A	17822
Battery Pack	EAC	4606	980002-449	N/A	N/A	17918

2.5 Configuration of Tested System

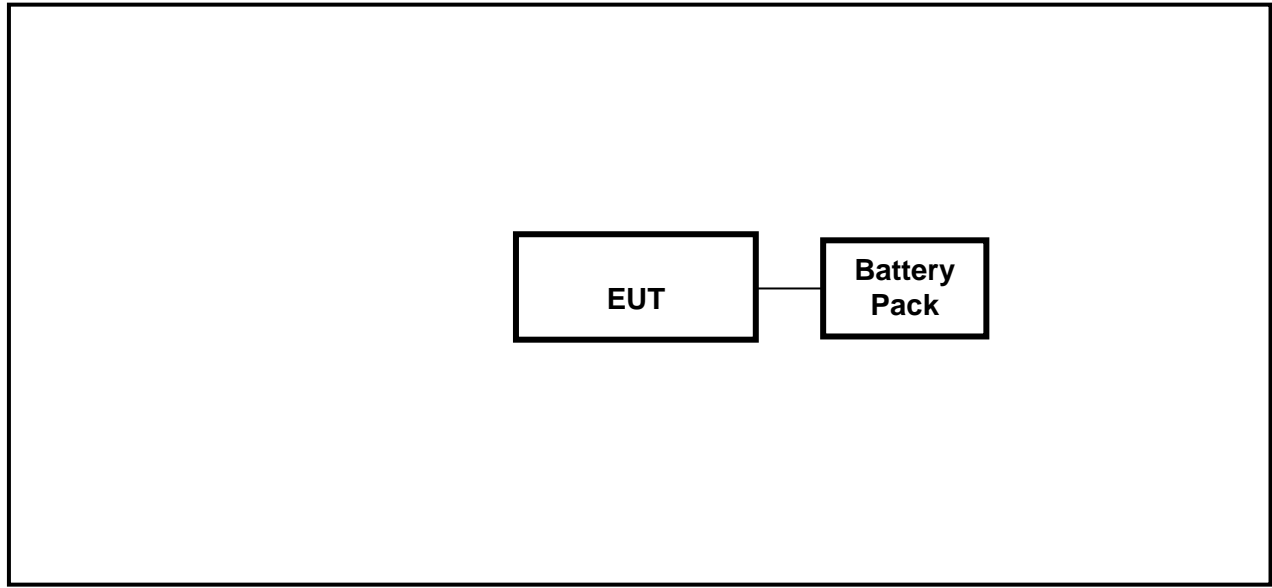


Figure 2-1: Configuration of System Under Test

3 Peak Output Power - §15.247(b)(3)

3.1 Power Output Test Procedure

A conducted power measurement of the EUT was taken using an Agilent Technologies power meter and sensor.

Table 3-1: Power Output Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901104	Agilent Technologies	E4416A	EPM-P Series Power Meter	GB41050573	10/03/07
901356	Agilent Technologies	E9232A	Power Sensor	US40410920	10/03/07

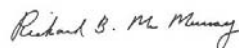
3.2 Power Output Test Data

Table 3-2: Power Output Test Data

Channel	Frequency (MHz)	Peak Power Conducted Output (dBm)
Low	905	8.7
Middle	915	8.3
High	925	7.6

Test Personnel:

Richard B. McMurray
EMC Test Engineer



Signature

May 23, 2007
Date of Test

4 Compliance With the Band Edge – FCC §15.247(d)

4.1 Band Edge Test Procedure

The transmitter output was connected to its appropriate antenna. A conducted antenna port delta measurement was performed from the highest peak in the restricted band to the peak of the fundamental, and subtracted from the radiated field strength; the result was compared to the limit.

Table 4-1: Band Edge Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900913	Hewlett Packard	85462A	EMI Receiver RF Section (9 kHz – 6.5 GHz)	3325A00159	03/21/08
900878	Rhein Tech Labs	AM3-1197-0005	3 meter antenna mast, polarizing	Outdoor Range 1	Not Required
901425	Insulated Wire, Inc.	KPS-1503-2400-KPS	RF cable, 20'	NA	12/05/07
901424	Insulated Wire Inc.	KPS-1503-360-KPS	RF cable 36"	NA	12/05/07
901242	Rhein Tech Labs	WRT-000-0003	Wood rotating table	N/A	Not Required
901053	Schaffner Chase	CBL6112B	Bi-Log Antenna (20 MHz - 2 GHz)	2648	11/01/07

4.2 Band Edge Test Results

4.2.1 Calculation of Lower Band Edge

95.1 dBuV/m is the field strength measurement, from which the delta measurement of 40.2 dB is subtracted (reference hopping plot), resulting in a level of 54.9 dB. This level has a margin of 20.4 dB below the limit of 75.1 dBuV/m.

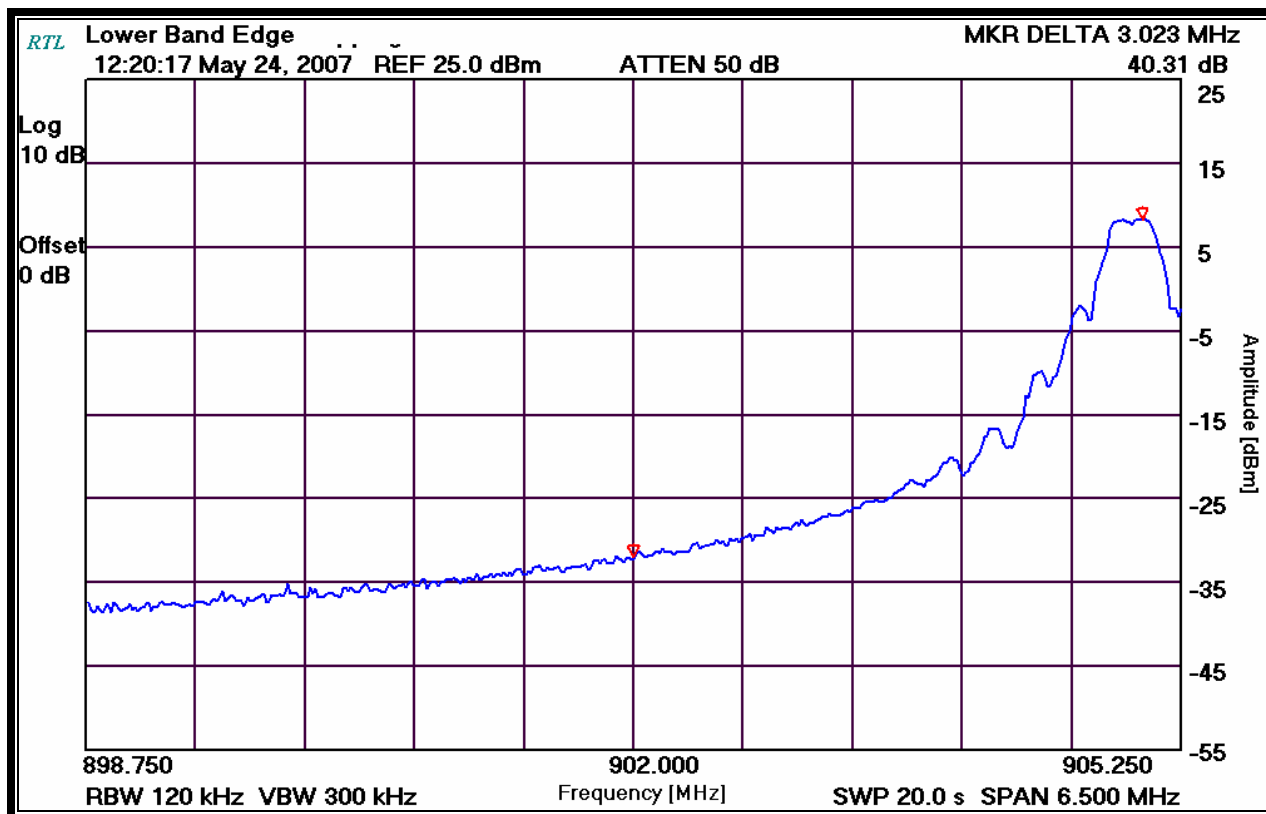
Calculation: $95.1 \text{ dBuV/m} - 40.2 \text{ dB} - 75.1 \text{ dBuV/m} = -20.2 \text{ dB}$

Peak Field Strength of Lower Band Edge (100 kHz RBW/300 kHz VBW) = 95.1 dBuV/m

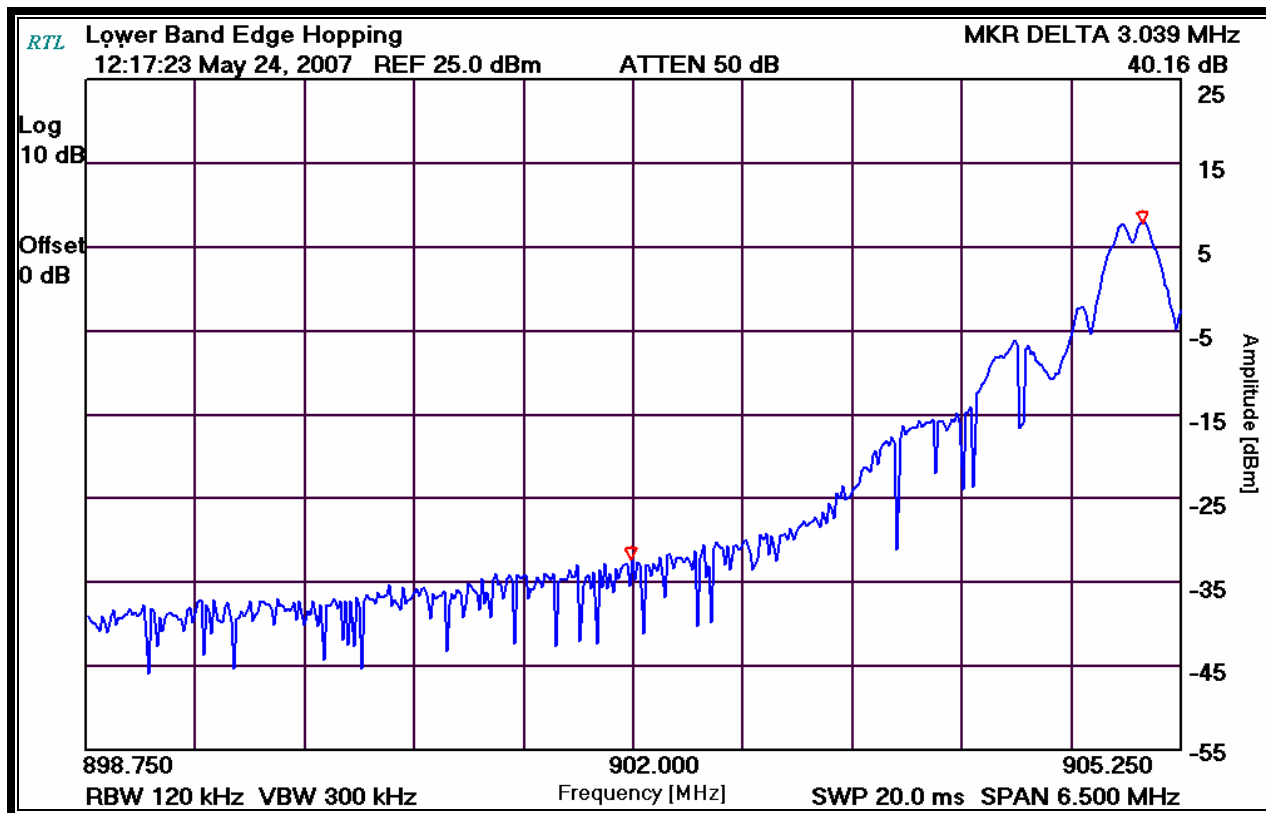
Quasi-Peak Field Strength of Lower Band Edge (120 kHz RBW/300 kHz VBW) = 95.0 dBuV/m

Delta measurement = 40.2 dB

4.2.2 Conducted Lower Band Edge Plots



Plot 4-1: Conducted Lower Band Edge – Fixed Low Channel Operation



Plot 4-2: Conducted Lower Band Edge – Hopping

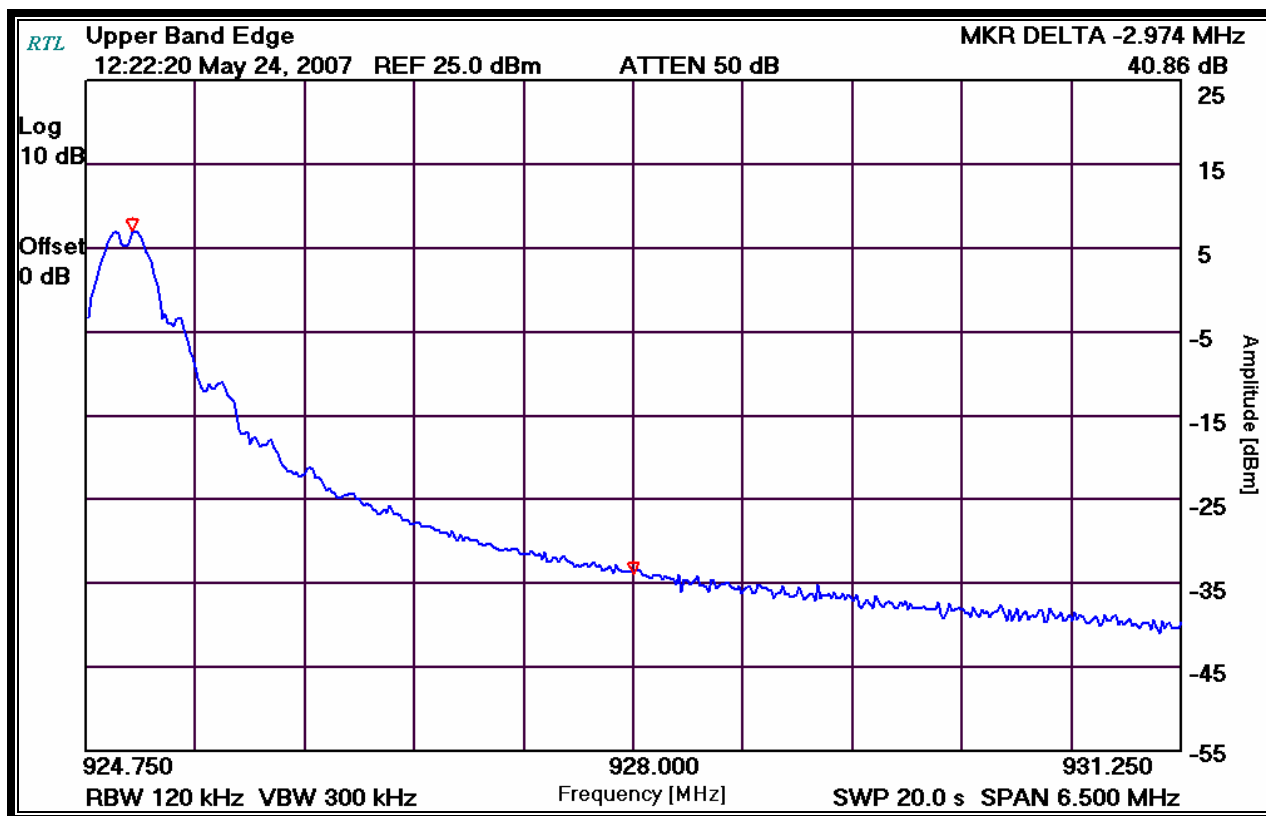
4.2.3 Calculation of Upper Band Edge

93.8 dBuV/m is the field strength measurement, from which the delta measurement of 40.2 dB is subtracted (reference hopping plot), resulting in a level of 53.6 dB. This level has a margin of 20.2 dB below the limit of 73.8 dBuV/m.

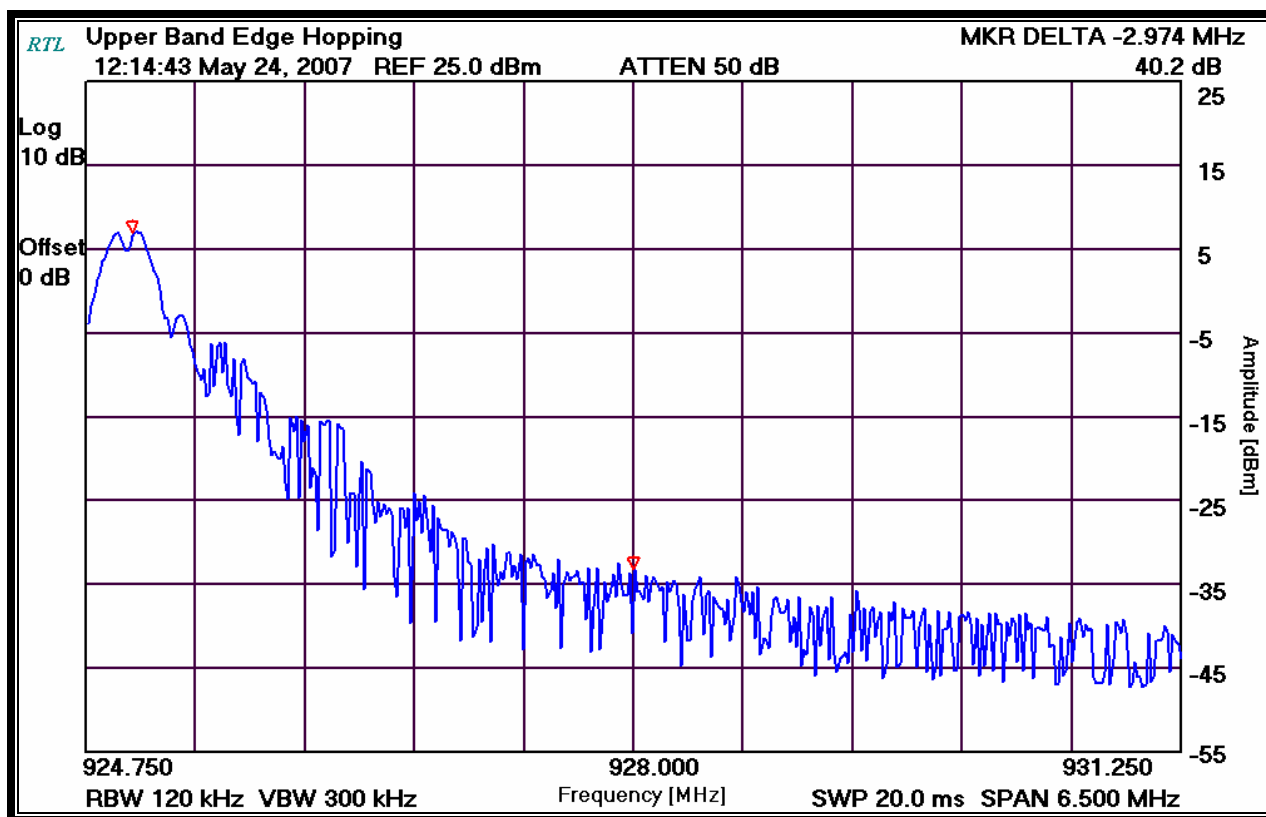
Calculation: $93.8 \text{ dBuV/m} - 40.2 \text{ dB} - 73.8 \text{ dBuV/m} = -20.2 \text{ dB}$

Peak Field Strength of Upper Band Edge (1 MHz RBW/1 MHz VBW) = 93.8 dBuV/m
 Average Field Strength of Upper Band Edge (1 MHz RBW/10 Hz VBW) = 93.6 dBuV/m
 Delta measurement = 40.2 dB

4.2.4 Conducted Upper Band Edge Plots



Plot 4-3: Conducted Upper Band Edge – Fixed High Channel Operation



Plot 4-4: Conducted Upper Band Edge – Hopping

Test Personnel:

Dan Baltzell
EMC Test Engineer

Daniel W. Baltzell

Signature

May 24, 2007
Date Of Test

5 Antenna Conducted Spurious Emissions - §15.247(d)

5.1 Antenna Conducted Spurious Emissions Test Procedure

Antenna spurious emissions per FCC 15.247(d) were measured from the EUT antenna port using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 300 kHz. The modulated carrier was identified at the following frequencies: 905 MHz, 915 MHz, 925 MHz, and hopping mode.

Note that the limit is 20 dBc, as we are reporting peak power.

Table 5-1: Antenna Conducted Spurious Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901215	Hewlett Packard	E8596EM	EMC Analyzer	3826A00144	10/16/07

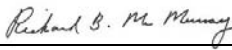
The following spurious emissions were found with the EUT in hopping mode. No other conducted spurious emissions were identified within 20 dB of the limit. Per 15.31(o), no other data is being reported.

Table 5-2: Antenna Conducted Spurious Emissions – Hopping Mode

Frequency (GHz)	Reference Fundamental Power (dBm)	Level (dBm)	Limit (dBm)	Margin	Pass/Fail
1.81	8.1	-30.7	-11.9	-18.8	Pass
1.82	8.1	-30.6	-11.9	-18.7	Pass
1.83	8.1	-30.8	-11.9	-18.9	Pass
1.84	8.1	-30.7	-11.9	-18.8	Pass
1.85	8.1	-30.8	-11.9	-18.9	Pass

Test Personnel:

Richard B. McMurray
EMC Test Engineer


Signature

May 23, 2007
Date Of Test

6 Power Spectral Density - §15.247(e), (f); RSS-210 §A8.2

6.1 Power Spectral Density Test Procedure

The power spectral density per FCC 15.247(d) was measured using a 50 ohm spectrum analyzer with the resolution bandwidth set at 3 kHz, the video bandwidth set at 30 kHz, and the sweep time set at 200 kHz span/3kHz or 70 seconds. The spectral lines were resolved for the modulated carriers at the low, middle and high channels. These levels are below the +8 dBm limit. See the power spectral density table and plots.

Table 6-1: Power Spectral Density Test Equipment

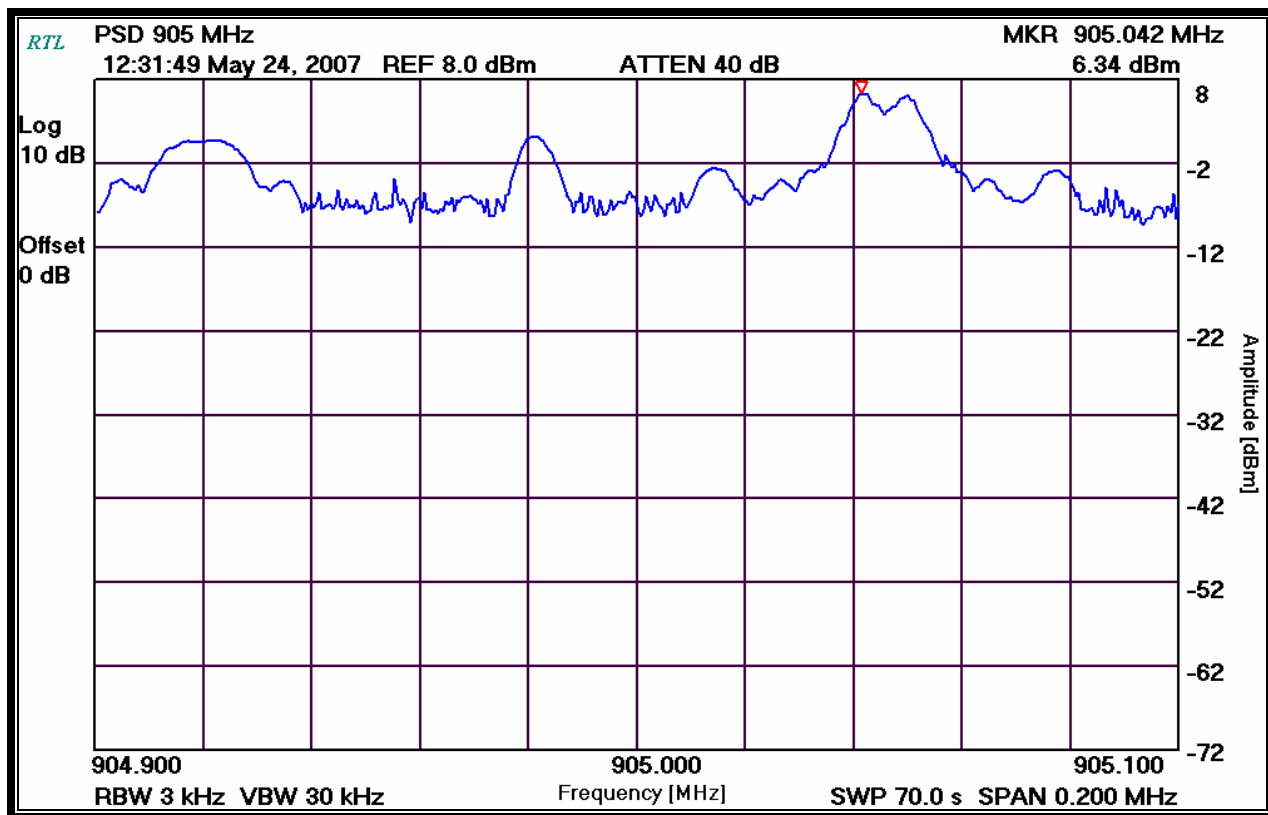
RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900913	Hewlett Packard	85462A	EMI Receiver RF Section (9 kHz – 6.5 GHz)	3325A00159	03/21/08

6.2 Power Spectral Density Test Data

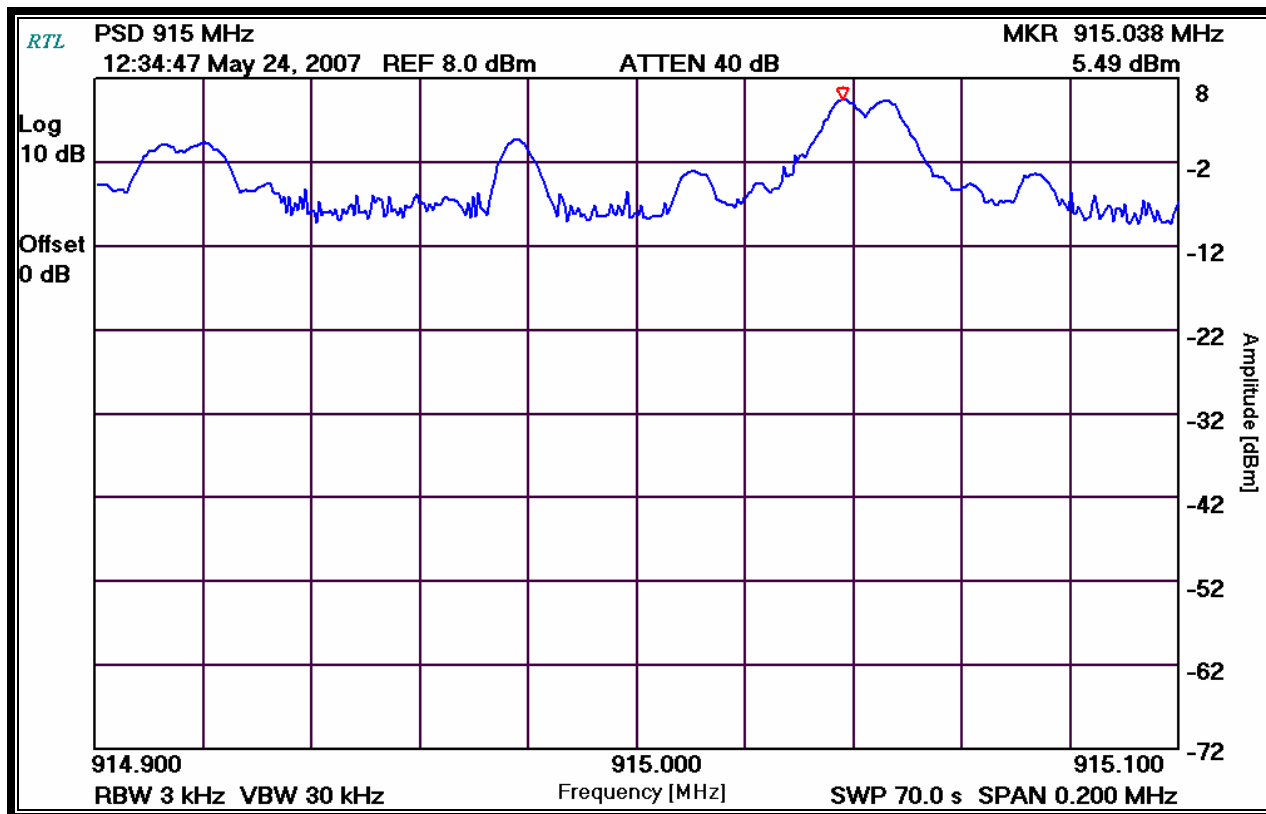
Table 6-2: Power Spectral Density Test Data

Channel	Frequency (MHz)	RF Power Level (dBm)	Maximum Limit +8dBm	Pass/Fail
Low	905	6.3	8	Pass
Mid	915	5.5	8	Pass
High	925	4.9	8	Pass

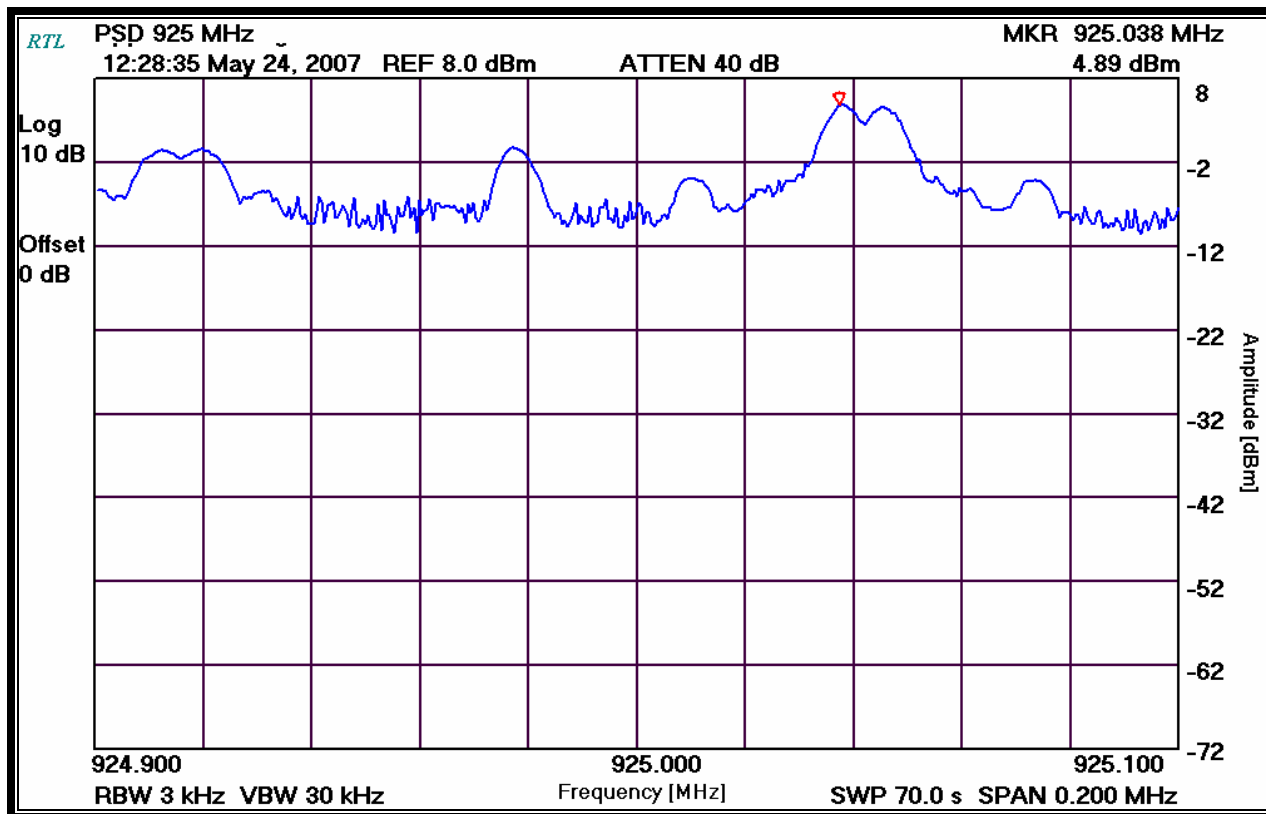
Plot 6-1: Power Spectral Density - 905 MHz



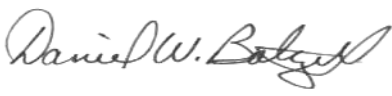
Plot 6-2: Power Spectral Density - 915 MHz



Plot 6-3: Power Spectral Density - 925 MHz



Test Personnel:

Dan Baltzell EMC Test Engineer	 Signature	May 24, 2007 Date Of Test
-----------------------------------	--	------------------------------

7 6 dB Bandwidth – IC RSS-Gen

7.1 6 dB Bandwidth Test Procedure

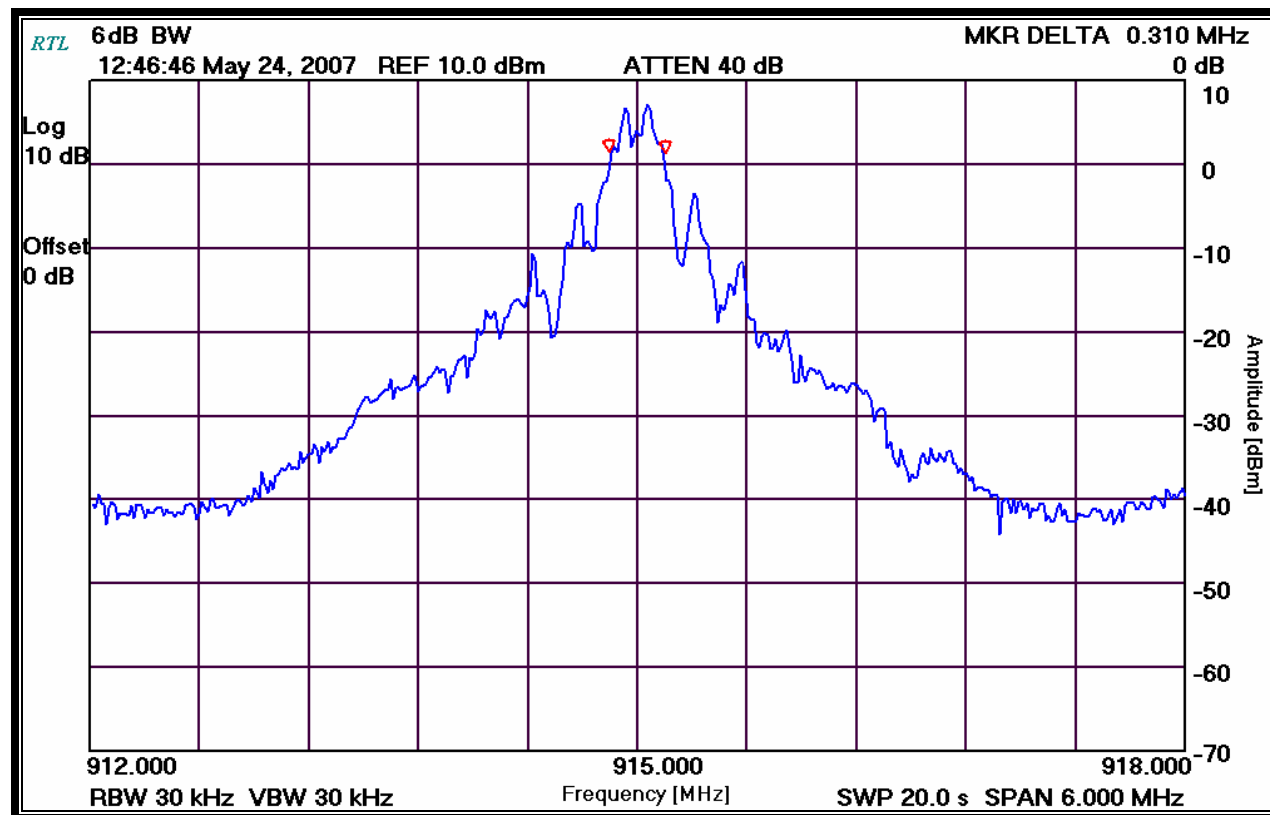
The minimum 6 dB bandwidth per RSS-Gen was measured using a 50 ohm spectrum analyzer. The modulated carrier was adjusted on the analyzer so that it was displayed entirely on the spectrum analyzer. The minimum 6 dB bandwidth was measured using the spectrum analyzer delta marker set 6 dB down from the peak of the carrier.

Table 7-1: 6 dB Bandwidth Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900913	Hewlett Packard	85462A	EMI Receiver RF Section (9 KHz – 6.5 GHz)	3325A00159	03/21/08

7.2 6 dB Modulated Bandwidth Test Data

Plot 7-1: 6 dB Bandwidth



Test Personnel:

Daniel W. Baltzell
Test Engineer

Daniel W. Baltzell

Signature

May 24, 2007
Date Of Test

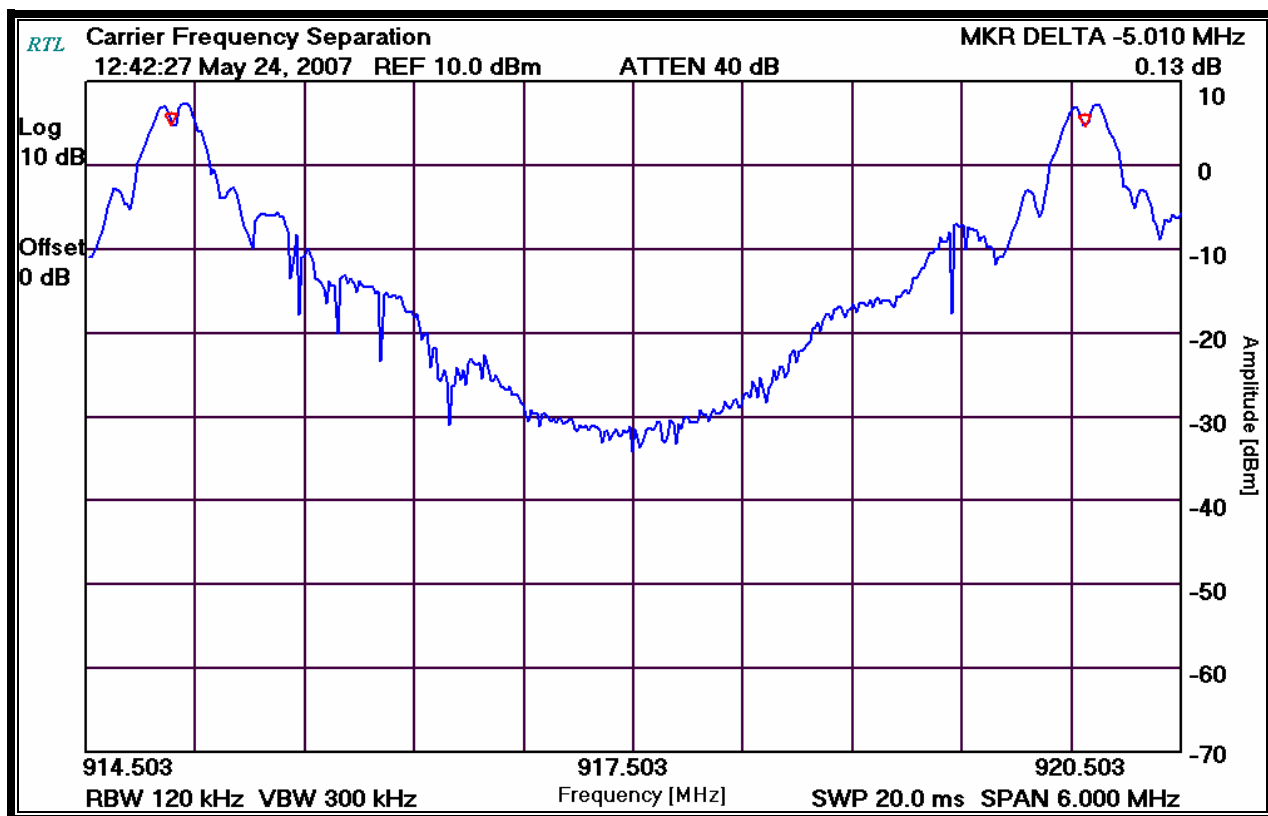
8 Hopping Characteristics

8.1 Carrier Frequency Separation - §15.247

8.1.1 Carrier Frequency Separation Test Data

Measured frequency separation = 5 MHz

Plot 8-1: Carrier Frequency Separation

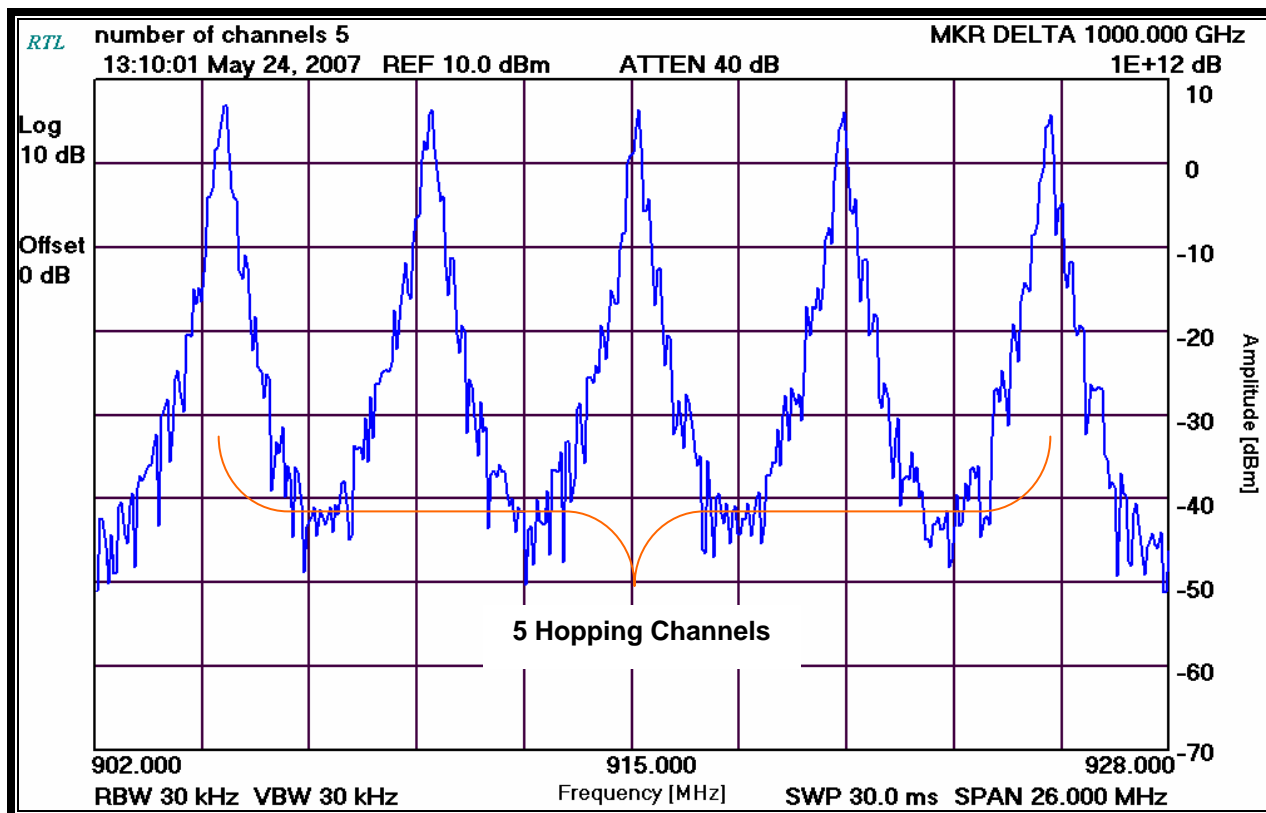


8.2 Number of Hopping Frequencies - §15.247

8.2.1 Carrier Frequency Separation Test Data

Measured number of hopping frequencies = 5

Plot 8-2: Number of Hopping Frequencies



8.3 Average Time of Occupancy - 15.247(f)

8.3.1 Average Time of Occupancy Limits

The frequency hopping operation of the hybrid system, with the direct sequence or digital modulation operation turned off, shall have an average time of occupancy on any frequency not to exceed 0.4 seconds within a time period in seconds equal to the number of hopping frequencies employed multiplied by 0.4.

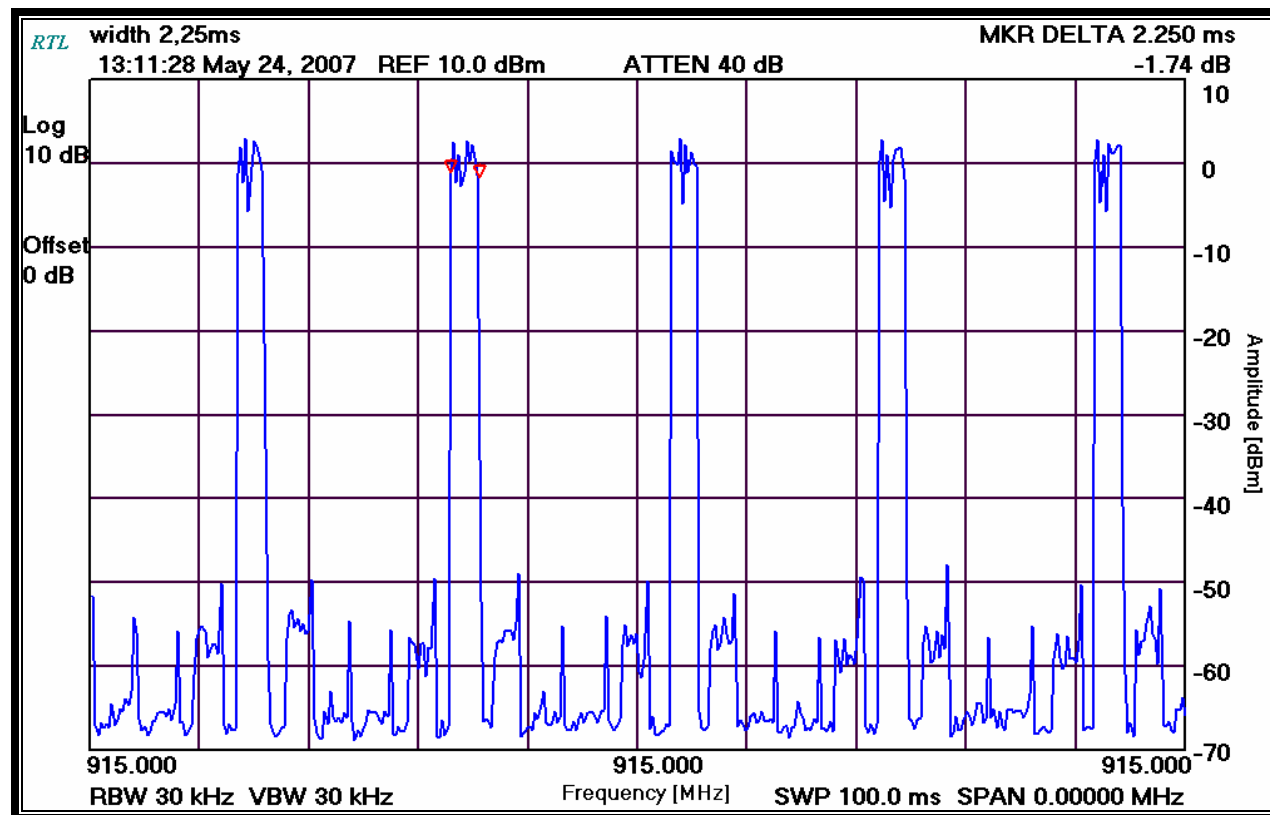
8.3.2 Average Time of Occupancy Test Procedure

The spectrum analyzer sweep was set to 20 ms, with a zero span and max hold until a pulse from the device under test was captured. A marker delta was used to measure the dwell time for this pulse. The sweep was then set to single sweep for 30 and the number of pulses counted.

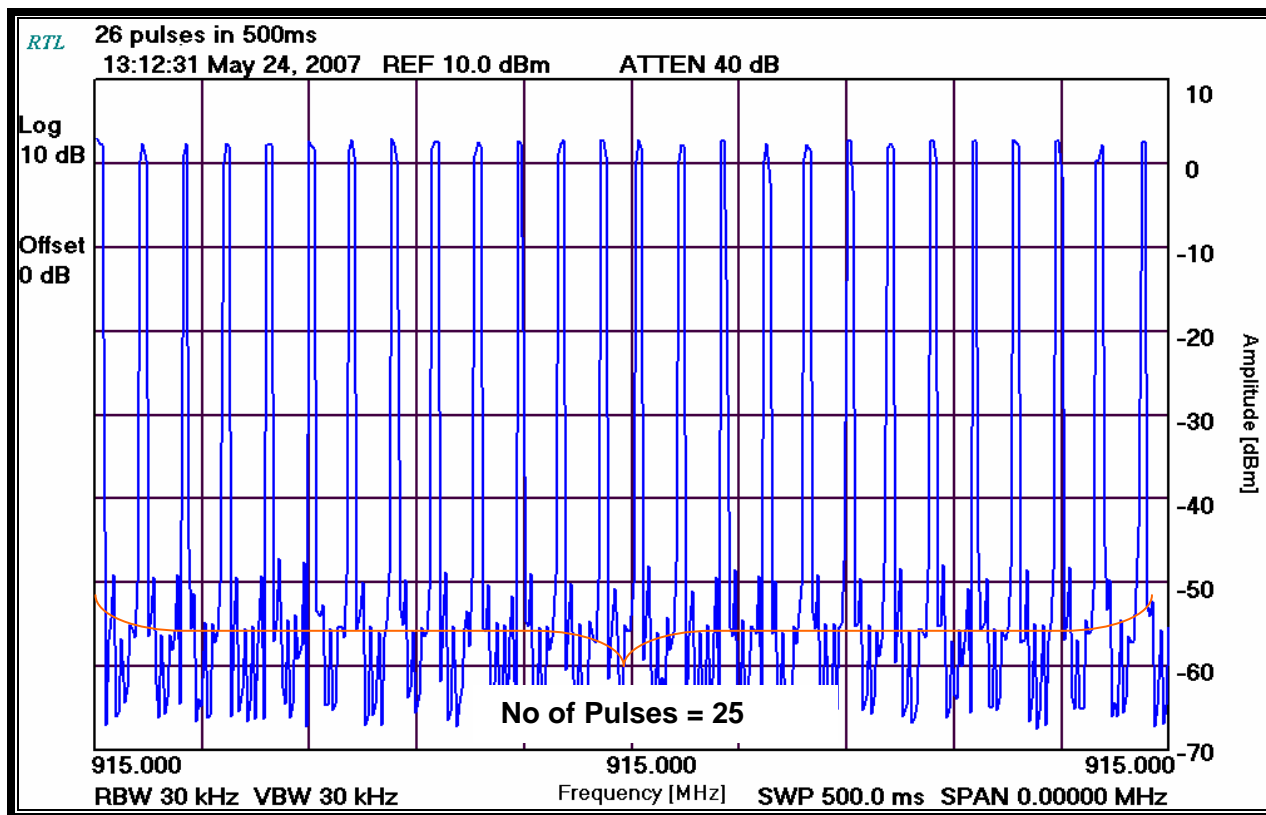
8.3.3 Average Time of Occupancy Test Data

The number of pulses in a period of 0.4 seconds X 5 hopping channels (2 s) was 104.
The average time of occupancy in the above period (2 s) is equal to 104 pulses X 2.25 ms = 234 ms, which meets the limit of 0.4 seconds as defined by 15.247(f).

Plot 8-3: Time of Occupancy (Pulse Width 2.25 ms)



Plot 8-4: Time of Occupancy (Pulses per 500ms Sweep)



Number of pulses in 500ms: 26

Or

$26 * (2/.5) = 104$ pulses in a 2 second period

Table 8-1: Hopping Characteristics Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900913	Hewlett Packard	85462A	EMI Receiver RF Section (9 KHz – 6.5 GHz)	3325A00159	03/21/08

Test Personnel:

Dan Baltzell
EMC Test Engineer

Daniel W. Baltzell

Signature

May 24, 2007
Date Of Test

9 Additional Requirements for Hybrid Systems – FCC §15.247(a)(1)

Hybrid systems must also comply with the following requirements. These requirements were not tested but compliance is attested to in the operational description.

- Pseudo-random hop sequence
- Equal use of each frequency
- Receiver matching bandwidth and synchronization

10 Conducted Emissions Measurement Limits – FCC §15.207

Not applicable – the EUT is battery powered.

.

11 Radiated Emissions - §15.209

11.1 Limits of Radiated Emissions Measurement

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009-0.490	2400/f (kHz)	300
0.490-1.705	2400/f (kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

As shown in 15.35(b), for frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any circumstances of modulation.

11.2 Radiated Emissions Measurement Test Procedure

Before final measurements of radiated emissions were made on the open-field three/ten meter range, the EUT was scanned indoors at one and three meter distances. This was done in order to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, in order to ensure that maximum emission amplitudes were attained.

Final radiated emissions measurements were made on the three/ten-meter, open-field test site. The EUT was placed on a nonconductive turntable 0.8 meters above the ground plane. The spectrum was examined from 9 kHz to the 10th harmonic of the highest fundamental transmitter frequency (24.8 GHz).

At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations. For frequencies between 30 and 1000 MHz, the spectrum analyzer's 6 dB bandwidth was set to 120 kHz, and the analyzer was operated in the CISPR quasi-peak detection mode. For emissions above 1000 MHz, emissions are measured using the average detector function with a minimum resolution bandwidth of 1 MHz. No video filter less than 10 times the resolution bandwidth was used. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

Table 11-1: Radiated Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900151	Rohde and Schwarz	HFH2-Z2	Loop Antenna (9 kHz - 30 MHz)	827525/019	09/15/09
900932	Hewlett Packard	8449B OPT H02	Preamplifier (1 - 26.5 GHz)	3008A00505	05/16/08
900811	Rhein Tech Laboratories, Inc.	PR-1040	Amplifier (10 MHz - 2 GHz)	1004	03/15/08
900913	Hewlett Packard	8546A	Spectrum Analyzer	3325A00159	03/21/08
900878	Rhein Tech Laboratories, Inc.	AM3-1197-0005	3 meter antenna mast, polarizing	Outdoor Range 1	Not Required
901425	Insulated Wire, Inc.	KPS-1503-2400-KPS	RF cable, 20'	NA	12/05/07
901424	Insulated Wire Inc.	KPS-1503-360-KPS	RF cable 36"	NA	12/05/07
901242	Rhein Tech Laboratories, Inc.	WRT-000-0003	Wood rotating table	N/A	Not Required
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	05/20/08
900321	EMCO	3161-03	Horn Antennas (4 – 8.2 GHz)	9508-1020	05/20/08
900323	EMCO	3160-7	Horn Antennas (8,2 - 12,4 GHz)	9605-1054	05/20/08
901053	Schaffner Chase	CBL6112B	Bi-Log Antenna (20 MHz - 2 GHz)	2648	11/01/07

11.3 Radiated Emissions Test Results

11.3.1 Radiated Emissions Digital/Receiver Test Data

Table 11-2: Digital/Receiver Radiated Emissions Test Data

Temperature: 72°F Humidity: 38%										
Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass/Fail
208.955	Qp	H	0	1.0	29.4	-17.7	11.7	43.5	-31.8	Pass
463.043	Qp	H	0	1.0	29.9	-8.7	21.2	46.0	-24.8	Pass
502.380	Qp	H	0	1.0	25.9	-7.9	18.0	46.0	-28.0	Pass
515.047	Qp	H	0	1.0	33.2	-7.7	25.5	46.0	-20.5	Pass
784.630	Qp	H	0	1.0	24.7	-3.5	21.2	46.0	-24.8	Pass
812.575	Qp	H	0	1.0	28.5	-3.1	25.4	46.0	-20.6	Pass

11.3.2 Radiated Emissions Harmonics/Spurious Test Data

Table 11-3: Radiated Emissions Harmonics/Spurious - 905 MHz

Fundamental amplitude = 95.1 dBuV/m

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV) (1 MHz RBW/10 Hz VBW)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
1810.0	67.5	53.0	8.3	61.3	75.1	-13.8
2715.0	49.9	38.3	12.8	51.1	54.0	-2.9
3620.0	42.1	31.3	11.0	42.3	54.0	-11.7
4525.0	47.0	35.9	16.2	52.1	54.0	-1.9
6335.0	41.4	29.0	15.3	44.3	75.1	-30.8
8145.0	44.1	31.8	14.1	45.9	54.0	-8.1

Table 11-4: Radiated Emissions Harmonics/Spurious - 915 MHz

Fundamental amplitude = 93.9 dBuV/m

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV) (1 MHz RBW/10 Hz VBW)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
1830.0	65.9	53.8	8.5	62.3	73.9	-11.6
2745.0	46.2	34.9	13.1	48.0	54.0	-6.0
3660.0	46.2	35.2	11.2	46.4	54.0	-7.6
4575.0	41.6	30.2	16.0	46.2	54.0	-7.8
5490.0	41.0	29.6	16.2	45.8	73.9	-28.1
7320.0	43.3	31.5	14.8	46.3	54.0	-7.7

Table 11-5: Radiated Emissions Harmonics/Spurious - 925 MHz

Fundamental amplitude = 93.8 dBuV/m


Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV) (1 MHz RBW/10 Hz VBW)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
1850.0	63.4	52.3	8.7	61.0	73.8	-12.8
2775.0	45.1	34.8	12.8	47.6	54.0	-6.4
3700.0	49.0	38.1	11.7	49.8	54.0	-4.2
4625.0	43.0	32.2	16.2	48.4	54.0	-5.6
5550.0	40.8	29.3	16.0	45.3	73.8	-28.5
7400.0	43.3	31.6	15.3	46.9	54.0	-7.1

Table 11-6: Radiated Emissions Harmonics/Spurious Hopping Mode

Fundamental amplitude = 95.1 dBuV/m

Emission Frequency (MHz)	Peak Analyzer Reading (dBuV) (1 MHz RBW/VBW)	Average Analyzer Reading (dBuV) (1 MHz RBW/10 Hz VBW)	Site Correction Factor (dB/m)	Average Emission Level (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)
1810.0	50.2	31.9	18.2	50.1	75.1	-25.0
1820.0	50.5	32.1	18.4	50.5	75.1	-24.6
1830.0	51.3	32.1	18.2	50.3	75.1	-24.8
1840.0	53.9	32.7	18.4	51.1	75.1	-24.0
1850.0	53.5	33.0	18.4	51.4	75.1	-23.7
2715.0	49.2	31.4	12.8	44.2	54.0	-9.8
2730.0	49.0	31.0	13.0	44.0	54.0	-10.0
2745.0	48.1	30.8	13.1	43.9	54.0	-10.1
2760.0	49.0	31.2	13.0	44.2	54.0	-9.8
2775.0	48.1	30.8	12.8	43.6	54.0	-10.4
3620.0	45.8	30.2	11.0	41.2	54.0	-12.8
3640.0	47.1	30.6	11.2	41.8	54.0	-12.2
3660.0	46.3	30.4	11.2	41.6	54.0	-12.4
3680.0	46.6	30.6	11.5	42.1	54.0	-11.9
3700.0	47.9	30.9	11.7	42.6	54.0	-11.4
4525.0	43.4	28.6	16.2	44.8	54.0	-9.2
4555.0	43.5	28.6	16.0	44.6	54.0	-9.4

Test Personnel:

Daniel W. Baltzell		May 29, 2007
EMC Test Engineer	Signature	Date Of Test

12 Conclusion

The data in this measurement report shows that the EUT as tested, Zylaya Corporation, Model Name: Z-Fob, FCC ID: UVV-ZFOB, IC: 7070A-ZFOB, complies with all the applicable requirements of Parts 2 and 15 of the FCC Rules and Regulations and IC RSS-210.